Appl. No. 10/076,524 Amdt. dated October 1, 2003

Reply to Office Action of July 11, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1. (Amended) A tank joint part welded to a resinous outer surface of of a fuel tank for joining another device thereto, and made of a resinous material satisfying the following requirements:
- (1) the difference in volume swelling between materials of the tank joint part and the outer surface of the tank is 10% or less when they swell with fuel, as measured under the following specific conditions: a test specimen measuring 10 mm square by 2 mm thick is prepared from each resinous material and dipped in a mixture of Fuel C and ethanol (containing 10% by volume of ethanol in Fuel C, a test gasoline prepared by mixing equal proportions of toluene and isooctane) at a temperature of 40°C, and after 360 hours its volume swelling is calculated in percentage as compared with its volume prior to dipping; and
- (2) the bonding strength between the materials of the tank joint part and the outer surface of the tank is at least 2 MPa, as measured under the following specific conditions: two halves of a dumbbell specimen defined by ISO 527 as divided from each other along its longitudinal axis are prepared from the two kinds of materials to be tested in bonding strength, respectively, and are joined together by direct thermal welding to make a dumbbell specimen, which is dipped in a mixture of Fuel C and ethanol (containing 10% by volume of ethanol in Fuel C, a test gasoline prepared by mixing equal proportions of toluene and isooctane) at 40°C, and after 360 hours it is tensed in opposite directions at a pair of opposite edges at a rate of 50 mm per minute and the bonding strength between the two halves thereof is calculated in MPa.
- 2. (Amended) A tank joint part welded to a resinous outer surface of a fuel tank for joining another device thereto, comprising a joining member made of a resinous material and welded to the outer surface of the tank, and a main member made of a resinous material and engaging the

joining member, the resinous materials of the outer surface of the tank and the joining and main members satisfying the following requirements:

- (3) every two adjoining materials have a difference in volume swelling of 10% or less when they swell with fuel, as measured under the following specific conditions: a test specimen measuring 10 mm square by 2 mm thick is prepared from each resinous material and dipped in a mixture of Fuel C and ethanol (containing 10% by volume of ethanol in Fuel C, a test gasoline prepared by mixing equal proportions of toluene and isooctane) at a temperature of 40°C, and after 360 hours its volume swelling is calculated in percentage as compared with its volume prior to dipping; and
- (24) every two adjoining materials have a bonding strength of at least 2 MPa therebetween, as measured under the following specific conditions: two halves of a dumbbell specimen defined by ISO 527 as divided from each other along its longitudinal axis are prepared from the two kinds of materials to be tested in bonding strength, respectively, and are joined together by direct thermal welding to make a dumbbell specimen, which is dipped in a mixture of Fuel C and ethanol (containing 10% by volume of ethanol in Fuel C, a test gasoline prepared by mixing equal proportions of toluene and isooctane) at 40°C, and after 360 hours it is tensed in opposite directions at a pair of opposite edges at a rate of 50 mm per minute and the bonding strength between the two halves thereof is calculated in MPa.
- 3. (Original) The tank joint part according to claim 2, wherein the main and joining members form a unitary product of two-color or multicolor injection molding.
- 4. (Original) The tank joint part according to claim 3, wherein the main and joining members are complementarily engaged with each other in cross section.
- 5. (Original) The tank joint part according to claim 2, wherein the joining member is of the multilayer structure comprising at least two joining submembers lying between the tank and the main member, and every two adjoining materials satisfying the two requirements (3) and (4).
- 6. (Original) The tank joint part according to claim 5, wherein the main member and the joining submembers form a unitary product of two-color or multicolor injection molding.
- 7. (Amended) The tank joint part according to claim 6, wherein the main member and teh the joining submembers are complementarily engaged with each other in cross section.
- 8. (Amended) The tank joint part according to claim 1, wherein the material of the tank joint part has a fuel permeability of 2.5 mg×mm/cm²/day or less as measured under the following

specific conditions: a test specimen (having a thickness of 0.2 to 0.5 mm and prepared from each material to be tested) is used to close tightly the top opening of a container holding a mixture of Fuel C and ethanol, and the container is turned upside down so that the specimen may form the bottom of the container, which container is held in an atmosphere having a temperature of 40°C and is weighed every day for a month; its change in weight is used to calculate the fuel permeability of the material.

- 9. (Amended) The tank joint part according to claim 2, wherein the materials of the main and joining members have a fuel permeability of 2.5 mg·mm/cm²/day or less as measured under the following specific conditions: a test specimen (having a thickness of 0.2 to 0.5 mm and prepared from each material to be tested) is used to close tightly the top opening of a container holding a mixture of Fuel C and ethanol, and the container is turned upside down so that the specimen may form the bottom of the container, which container is held in an atmosphere having a temperature of 40°C and is weighed every day for a month; its change in weight is used to calculate the fuel permeability of the material.
- 10. (Amended) The tank joint part according to claim 5, wherein the materials of the main member and the joining submembers have a fuel permeability of 2.5 mg·mm/cm²/day or less as measured under the following specific conditions: a test specimen (having a thickness of 0.2 to 0.5 mm and prepared from each material to be tested) is used to close tightly the top opening of a container holding a mixture of Fuel C and ethanol, and the container is turned upside down so that the specimen may form the bottom of the container, which container is held in an atmosphere having a temperature of 40°C and is weighed every day for a month; its change in weight is used to calculate the fuel permeability of the material.
- 11. (Amended) The tank joint part according to claim 1, wherein the outer surface of of the tank is of high-density polyethylene, and the tank joint part is of an alloy of a resinous material of low fuel permeability and a polyolefin elastomer.
- 12. (Original) The tank joint part according to claim 11, wherein the resinous material of low fuel permeability is selected from the group consisting of polyphenylene sulfides, polyesters, polyacetals, polyamides and ethylene-vinyl alcohol copolymers.
- 13. (Amended) The tank joint part according to claim 2, wherein the outer surface of of the tank is of high-density polyethylene, and the main and joining members are of an alloy of a resinous material of low fuel permeability and a polyolefin elastomer.

- 14. (Original) The tank joint part according to claim 13, wherein the resinous material of low fuel permeability is selected from the group consisting of polyphenylene sulfides, polyesters, polyacetals, polyamides and ethylene-vinyl alcohol copolymers.
- 15. (Original) The tank joint part according to claim 5, wherein the outer surface of the tank is of high-density polyethylene, and the main member and the joining submembers are of an alloy of a resinous material of low fuel permeability and a polyolefin elastomer.
- 16. (Original) The tank joint part according to claim 15, wherein the resinous material of low fuel permeability is selected from the group consisting of polyphenylene sulfides, polyesters, polyacetals, polyamides and ethylene-vinyl alcohol copolymers.
- 17. (Original) The tank joint part according to claim 1, wherein the tank joint part is a fuel filler valve or an onboard refueling vapor recovery valve.
- 18. (Original) The tank joint part according to claim 1, wherein the tank joint part is a pipe for connecting a hose to the tank.
- 19. (Original) The tank joint part according to claim 1, wherein the tank is a single-layered resinous tank or a multilayered tank at least the outer surface layer of which is of a resinous material.
- 20. (Original) The tank joint part according to claim 1, wherein the tank is an automobile fuel tank.